Draft
Model Stormwater Control Ordinance

Section 1

1.1 Purpose

Unmitigated stormwater from areas altered by development may pose public health and safety threats. Potential contaminants in stormwater runoff may include suspended solids, nitrogen, phosphorus, hydrocarbons, heavy metals, pathogenic organisms (bacteria and viruses), and road salts. Stormwater runoff may impact any water resource—surface water, groundwater and wetlands—and is often cited as the most significant contributor of nonpoint source water pollution.

Best management practices for stormwater management help to prevent adverse impact. However, practices must be designed, installed and maintained properly to ensure their effective function. Practices that do not function properly may degrade water quality as well as present nuisance and safety hazards.

This ordinance establishes the administrative mechanisms necessary for *[name of municipality]* to ensure proper stormwater management. The ordinance is written to work in conjunction with current state regulations.

1.2 Applicability

This ordinance shall apply to all development occurring within *[name of municipality]*. No person shall engage in land development activities without receiving approval from *[name of governing body]*, unless specifically exempted by Section 1.3 of this ordinance.

1.3 Exemptions

The following activities do not require written approval pursuant to this ordinance:

(A) Agricultural land management activities carried out in accordance with a conservation management plan that has been approved by the Natural Resources Conservation Service.

(B) Additions or modifications to existing single-family residential structures.

(C) Grading, as a maintenance measure or for landscaping, on contiguous areas of developed land, parcels and lots, which in aggregate do not exceed five thousand (5,000) square feet.

1.4 Variance

The _____ (municipal board or official) reviewing an application under this ordinance may:

(A) Vary requirements of this ordinance when strict implementation of the requirements of this ordinance create an unnecessary hardship or are not feasible.

(B) Allow use of an innovative management practice where strict adherence to existing criteria would be costly or of negligible environmental benefit.

1.5 Compatibility with Other Enforceable Policies

This ordinance shall not obviate or supercede any other federal, state or local regulations or statutes. The provisions of this ordinance shall be held to be minimum requirements for the promotion of public health, safety and general welfare. If a provision of this ordinance imposes a standard different from any related regulation or statute, the provision that imposes the more protective standard shall be observed.

1.6 Severability

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this ordinance shall be judged invalid by court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this ordinance.

Section 2--Definitions

The following definitions apply to this ordinance.

AGRICULTURAL DEVELOPMENT: means land uses normally associated with the production of food, fiber and livestock for sale. For purposes of this ordinance, such uses shall not include the development of land for the processing or sale of food and the manufacturing of agriculturally related products.

BEST MANAGEMENT PRACTICE (BMP): means a method for pollution

management, which is deemed to provide the best available treatment or control of a pollution source such as stormwater.

DETENTION BASIN: means an embankment and associated space for impoundment of water or, alternatively, the space for impoundment partially or entirely created by excavation rather than by embankment, in either case designed to temporarily retain stormwater runoff.

FLOOD HAZARD AREAS: means the floodway and flood fringe areas determined or delineated by the Department of Environmental Management.

FLOOD PLAIN: means the flood hazard areas of streams delineated the Department of Environmental Management and areas inundated by the 100-year flood in areas not delineated by the Department of Environmental Management.

FLOODWAY: means the channel of a natural stream and portions of the flood hazard areas adjoining the channel, which are reasonably required to carry and discharge the flood water or flood flow of any natural stream.

INFILTRATION BASIN: means a detention facility, which is not an injection well, that is designed to gradually filter and pass retained water to the subsurface.

NONPOINT SOURCE POLLUTION: means pollution from any source that is not discernible, confined and discrete. Potential sources of nonpoint pollution include, but are not limited to, stormwater runoff, agriculture, silviculture, mining, construction, septic systems and urban development.

RECHARGE: means the replenishment of underground water reserves.

STORMWATER RUNOFF: means flow on the surface of the ground, resulting from precipitation.

WET BASIN: means a detention basin designed to retain some water on a permanent basis.

WETLANDS: means an area, as defined by the Rhode Island General Laws and as determined by the Department of Environmental Management or the Coastal Resources Management Council, which is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support--and under normal circumstances does support--a prevalence of vegetation typically adapted for life in

saturated soil conditions, commonly known as hydrophytic vegetation.

Section 3—Submissions and Approvals

In accordance with Section 1.2 of this ordinance, all persons must obtain approval from *(name of municipal review board)* prior to engaging in any land development activities, unless exempted by Section 1.3 of this ordinance. To obtain approval applicants must demonstrate compliance with all policy, standards and requirements of this ordinance to the satisfaction of the *(name of municipal review board).* Applicants may demonstrate compliance via submission of materials and documentation in accordance with this section.

3.1 Stormwater Management Plan

All applicants shall provide a stormwater management plan as part of the submission for approval. Stormwater management plans shall incorporate the following.

(A) A discussion of protection of environmental resource functions and values in accordance with Section of this ordinance.

(B) A discussion of best management practices employed, in accordance with this ordinance, both during construction and post construction.

(C) A discussion of best management practice maintenance to be used, in accordance with this ordinance, both during construction and post construction.

3.2 Site Plan

All applicants shall provide a site plan as part of the submission for approval. Site plans shall incorporate the following.

(A) A map of existing site conditions in accordance with Section of this ordinance.

(B) Maps of the site showing all phases of construction of the proposed project in accordance with Section of this ordinance.

(C) Site planning calculations in accordance with Section of this ordinance.

(D) A narrative description of the proposed project in accordance with

Section of this ordinance.

3.3 Maintenance Agreement

All applicants shall provide a maintenance agreement as part of the submission for approval in accordance with Section of this ordinance.

3.4 Performance Surety

All applicants shall provide performance surety as part of the submission for approval. The performance surety shall incorporate the following.

(A) A letter of credit in accordance with Section of this ordinance.

(B) Evidence of posting in accordance with Section of this ordinance.

3.5 Processing of Submittals

Procedures for processing of submittals shall be as follows.

(A) Submittals for approval shall be provided to *[name of municipal governing board]* for review, processing and approval. *[Number of copies to be provided by applicant]* copies of the submittal shall be provided.

(B) All applicants shall provide an application fee as part of the submittal. Application fees shall be charged in accordance with Section10 of this ordinance.

(C) A review of the submittal shall be conducted by *[name of municipal governing board]* within *[number of days required for review]* days from the date of receipt. Written comments shall be provided to the applicant regarding the completeness of the submittal and requesting further information as necessary.

(D) If *[name of municipal governing board]* determines the submittal to be in compliance with the requirements of this ordinance, a permit may be issued. If the *[name of municipal governing board]* determines the submittal does not fully conform to the requirements of this ordinance a written denial shall be issued with an explanation for the denial.

(E) Any applicant who believes that a submission for approval has been denied without sufficient cause and that the submittal fully conforms with this ordinance may petition *[name of municipal*

governing board] in writing. If the applicant is again denied, the denial may be appealed to *[name of municipal appeals board]*, whose decision shall be final.

Section 4--Protection of functions and values

4.1 Wildlife And Wildlife Habitat Values

Stormwater management plans shall address protection of areas that provide wildlife habitat benefits.

4.2 Recreation and Cultural Values

Stormwater management plans shall address protection of areas that provide recreational, cultural or aesthetic values.

4.3 Flood Protection

Stormwater management plans shall demonstrate that a proposed project provides for protection of life and property from flooding and flood flows. Water quantities must be controlled in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended, or a municipally approved regional stormwater management plan for the watershed in which the development site is located. Stormwater management plans shall demonstrate incorporation of the following standards into the proposed project:

(A) Control and maintenance of postdevelopment peak discharge rates from the 2-year and 25-year storm events and predevelopment levels.

(B) Downstream analysis of the 100-year storm event and control of the peak discharge rate for the 100-year storm to mitigate significant downstream impacts.

(C) Discharge from any stormwater facility must be conveyed through properly constructed watercourses to provide for nonerosive flows during all storm events. The proposed stormwater conveyance system consisting of open channels, pipes, and other conveyance devices shall at a minimum accommodate the runoff from a 10-year storm event. The stormwater conveyance system must provide for nonerosive flows to receiving waters.

4.4 Surface Water And Groundwater

Stormwater management plans shall demonstrate that during develop

and postdevelopment, all receiving waters will be recharged in a manner closely resembling predevelopment conditions and that the developed site will retain hydrological conditions that closely resemble of those prior to disturbance.

Section 5—Technical Standards

All applicants are required to develop and submit a stormwater management plan. All stormwater management plans must address stormwater management on a site-by-site basis and all requirements of this ordinance. All stormwater management practices shall be consistent with the *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. The following general standards and policies are also requirements of the state. However, a state permit, assent, or other approval does not necessarily assure similar municipal approval. In situations where the state determines that a project is below regulatory threshold or outside state jurisdiction, *[name of municipality]* will continue to require that the following policies and standards be upheld.

All development shall incorporate appropriate and practical stormwater management. Stormwater management shall be described by applicants in a stormwater management plan and submitted in accordance with Section # of this ordinance. Stormwater management plans shall be prepared in accordance with Appendix A of this ordinance and demonstrate the following to maximum extent practicable.

5.1 Soil Erosion And Sediment Control

Stormwater management plans shall demonstrate soil erosion and sediment control in accordance with the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. Soil erosion and sediment control must incorporate the following:

(A) Fit development to the terrain.

(B) Divide the site into drainage areas to determine how runoff will travel over the site.

(C) Cluster buildings together to the extent allowable by municipal ordinances and regulations.

(D) Minimize impervious areas.

(E) Minimize disturbance of the natural drainage system.

(F) Keep land disturbance to a minimum.

(G) Stabilize disturbed areas.

(H) Keep runoff velocities low.

(I) Minimize the grades of slopes.

(J) Protect disturbed areas from stormwater runoff.

(K) Install perimeter sediment control practices.

(L) Prepare a thorough maintenance and inspection plan.

(M) Assign responsibility for a maintenance program.

(N) Coordinate with other development in the watershed.

5.2 Performance Standards

(A) Stormwater management plans shall incorporate best management practices for water quality control, which in combination are demonstrated to reduce the average annual total suspended solids in postdevelopment runoff by eighty percent (80%). Development in drinking water supply watersheds may be held to higher standards. To meet standards the following must be incorporated:

(B) The water quality design volume shall be defined as one inch (1") of runoff over all impervious surfaces or 0.4 inches of runoff over pervious areas. For purposes of computing runoff, all lands in the site shall be assumed, prior to development, to be in good hydrologic condition (if the lands are pastures, lawns or parks), with good cover (if the lands are woods), or with conservation treatment (if the land is cultivated), regardless of conditions existing at the times of computation. For lands to be considered cultivated, it shall have been used for such purposes uninterruptedly for a period of at least 10 years prior to the time of computation. If such uninterrupted use has not occurred or cannot be satisfactorily demonstrated, woods or brush shall be assumed to be the predeveloped land condition. All significant surface storage including open waters, ponding factors and hedgerows shall be accounted for in computing predevelopment runoff.

(C) Wet ponds must have a permanent pool volume equal to the water quality volume as described in item A.

(D) Extended detention dry ponds must detain the water quality volume over a 36-hour period (brim drawdown time).

(E) Infiltration methods must be designed to retain and exfiltrate the water quality volume over a maximum 72-hour period.

(F) All runoff up to the water quality design storm shall be controlled by one or more of the stormwater management best management practices as described in the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended.

(G) Alternative land use, site design, source controls and structural controls may be used when they can be shown to provide equal or greater water quality protection, have acceptable maintenance requirements, and will be monitored to demonstrate their effectiveness on site.

5.3 Disallowed Stormwater Best Management Practices

(A) The following stormwater best management practices shall not be allowed in *[name of municipality]*, regardless of any other federal, state, regional or local policy or regulation. (list of disallowed best management practices)

(B) The placement of detention basins and other stormwater structures within a floodplain shall be avoided. If there is no alternative, the applicant must show what effects, if any, the tailwaters created by the floodplain will have on the outflow and effective storage capacity of the detention facility.

5.4 Safety

Safety measures are to be incorporated in the design of all stormwater and infiltration control projects. These may include but are not limited to fencing, warning signs/stadia rod indicating depth at the deepest point, outlet structures designed to limit public access, and aquatic benches in basins containing permanent or standing water levels.

5.5 Facilitation of Maintenance

Stormwater management facilities must be designed to operate with minimal maintenance. Facilities that require maintenance shall be designed to minimize the need for regular maintenance, facilitate required maintenance, and ensure accessibility of components that require maintenance. At a minimum, all stormwater management plans must incorporate best

management practices with appropriate maintenance design in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended; or the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. In addition, the following maintenance design standards and policies must be incorporated into management practice design and stormwater management plans.

(A) Strong, durable and noncorroding materials, components, and fasteners shall be incorporated in facility design and demonstrated in stormwater management plans. These include, but are not limited to, the following:

1. Lightweight noncorroding metals such as aluminum for trash racks, orifice plates, anti-seep collars, and access hatches.

2. Hardy, disease resistant grasses for bottoms and side slopes (as prescribed by Soil Erosion and Sediment Control Standards administered by the local Soil Conservation District).

3. Reinforced concrete for outlet structures and inlet headwalls; PVC piping for culverts, and riprap and gabions for channel and outlet linings.

(B) Stormwater management facility outlets shall be designed to function normally without manual, electric or mechanical controls.

5.6 Nuisance Control

All stormwater management plans and best management practices shall incorporate nuisance control as appropriate. The following are the required policies and minimum standards:

(A) To control weeds, disease and pests, a regularly scheduled program of mowing and trimming of bottoms, side-slopes and embankments shall be specified and conducted.

(B) Stormwater management facilities shall be designed to minimize propagation of insects, particularly mosquitoes.

5.7 Landscaping

Stormwater management facilities shall be designed in a harmonious and attractive manner that visually compliments the natural environment of the development site as well as the postdeveloped condition.

(A) Use of landscaping as a method of reducing runoff and preventing pollutant inputs.

(B) Application of a minimal disturbance and minimal maintenance policy for landscaping. Where practical, clearing or site grading should only occur on land required for the structure and its associated utilities, drives, walks, and active recreational facilities. Following construction, unbuilt disturbed areas shall be revegetated with low- and no-maintenance, indigenous species.

(C) Where land disturbance is necessary and existing vegetation is removed, alternative landscaping, which encourages ground coverings, shade trees and shrubbery should be used. Landscaping should incorporate native vegetation to the maximum extent practicable. Use of lawns should be avoided where conditions indicate potential problems with turf establishment and maintenance.

(D) Appropriate fertilizer selection and application for vegetation reestablishment and landscaping.

Section 6—Maintenance Requirements for Best Management Practices

6.1 Routine Maintenance and Repair Procedures

(A) Preventative maintenance procedures are required to maintain the intended operation and safe condition of the stormwater management facility by greatly reducing the occurrence of problems and malfunctions. To be effective, preventative maintenance shall be performed on a regular basis and include such routine procedures as training of staff, periodic inspections, grass cutting (at least twice a year) and fertilizing, upkeep of moving parts, elimination of mosquito breeding habitats, and pond maintenance. Disposal of sediment and debris must occur on a regular basis (unless otherwise specified within an approved plan), at suitable disposal sites or recycling sites and comply with applicable local, state and federal regulations.

(B) Corrective maintenance procedures are required to correct a problem or malfunction at a stormwater management facility and to restore the facility's intended operation and safe condition. Based upon the severity of the problem, corrective maintenance must be performed on an as-needed or emergency basis and

include such procedures as structural repairs, removal of debris, sediment and trash removal which threaten discharge capacity, erosion repair, snow and ice removal, fence repair, mosquito extermination, and restoration of vegetated and nonvegetated linings.

(C) In the event that the stormwater management facility becomes a danger to public safety or public health, or in need of maintenance, the City/Town of _____ shall so notify the responsible person in writing by certified mail. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipality. If the responsible person fails or refuses to perform such maintenance and repair, the municipality may immediately proceed to do so and shall bill the cost thereof to the responsible person.

6.2 General Maintenance Standards for Stormwater Best Management Practices.

Maintenance design and maintenance procedures for all stormwater best management practices shall be in accordance *Rhode Island Stormwater Design and Installation Standards Manual*, as amended; or the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. Stormwater management plans shall demonstrate appropriate maintenance design and procedures for each proposed best management practice. The following policies and standards for maintenance must be incorporated into stormwater management plans, as applicable.

(A) A maintenance schedule for each type of BMP must be included in the application package and on the final site plans. These schedules shall list the frequency and type of maintenance operations necessary along with the legally responsible party's name, address, and telephone number. If the stormwater drainage system is to be deeded to the local municipality the applicant must obtain a letter from the municipality acknowledging maintenance responsibility and intent of ownership.

(B) An area must be set aside within the development site for the purpose of sediment disposal (where applicable). The disposal area shall be large enough to handle the volume of two clean-out cycles. The site may also serve as open space and recreation areas.

(C) Proper erosion and sediment control practices must be implemented during all phases of construction and until the site is satisfactorily stabilized. These plans must be printed on the final

site plans submitted for approval. All control practices shall be in accordance with the most recent edition of the *Rhode Island Soil Erosion and Sediment Control Handbook*.

(D) Grasses selected for specific site conditions must be planted around and within basins immediately following construction to stabilize the slopes and prevent erosion. Trees and shrubs shall not be planted on any impounding embankments, to prevent potential subsurface disturbance and possible failure of the structure.

(E) Side-slopes, embankments, and the upper stage of basins shall be mowed at least once per growing season, to prevent unwanted woody growth. Mowing may be more frequent in residential areas if a more groomed appearance is desired, however if a stormwater facility is managed for wildlife habitat mowing shall be conducted after mid-August to prevent mortality to ground nesting birds and animals.

(F) All trash and litter and other debris shall be removed from any stormwater facility including inlet and outlet structures. Maintenance of this type improves the physical appearance of the facility and prevents blockage of inlet/outlet structures, thereby averting failure of the structure. This must be accomplished at least twice per year, preferably spring and fall.

(G) Sediments shall be removed from any basin immediately following site stabilization and thereafter in accordance with the specific maintenance plan. Accumulated sediments may have to be removed more frequently if the sediment storage capacity of the forebay or sediment storage area is within the last 10 percent of its available capacity. Sediment removal within a basin shall restore the original capacity and design depth.

(H) If blockage of a basin outlet structure occurs, it may be necessary to dewater the pond for access to the blockage. The dewatering flow must be adequately filtered prior to discharge into a receiving waterbody to remove suspended solids.

(I) Pools of stagnant water in detention basins indicate failure due to erosion and scouring of the basin bottom, particularly near an inlet device. Such a deficiency must be corrected immediately to prevent a nuisance habitat for insects, especially mosquitoes.

(J) All outlet structures and outflow channels must be inspected annually. Furthermore, extended detention devices should be

inspected at least twice per year. Inspections should be accomplished several times during the first six months of operation, especially after rainfall events to check for clogging or, conversely, too rapid of a release.

(K) The grassed areas of any basin must be inspected at least twice per year to check for erosion problems. Problem areas must be reseeded immediately to stabilize exposed soils, thereby preventing erosion and potential clogging of outflow devices.

(L) Inspections of all catch basins on-site shall occur on an annual basis to check for debris removal (sediment and hydrocarbons) and structural integrity or damage. Such deficiency must be corrected immediately.

(M) Repairs or replacement of inlet/outlet structures, riprap channels, fences, or other elements of the facility shall be done within 30 days of deficiency reports. If an emergency situation is imminent then repair/replacement must be done immediately to avert failure or danger to nearby residents.

Section 7—Site Plan

7.1 Map of Existing Site Conditions

The existing conditions site map is useful for reviewing the physical features present at the proposed development site prior to any alteration from land disturbance or construction. This map of predevelopment conditions should at minimum include the information listed below. Additionally, this map should have a scale no smaller than 1 inch = 100 feet with contour intervals no greater than 5 feet. Larger map scales providing greater detail will be acceptable. Individual sheets must not exceed 24 inches by 36 inches.

(A) North arrow with scale.

(B) Existing topography of the site.

(C) Subwatersheds must be clearly delineated and numbered for reference. Within each subwatershed the following information must be clearly noted: Area in acres, runoff curve number, soil types, hydrologic class, and hydrologic condition.

(D) The stormwater discharge location for each subwatershed must be identified and labeled with peak discharge rates and volumes for the required design storms.

(E) Location of steep slopes, bedrock outcrops, or other significant site constraints.

(F) The applicant's property lines and boundaries of proposed development with bearings and distances.

(G) Abutting property owners and their respective boundaries must be clearly shown along with nearby utility pole numbers and adjacent streets and intersections to facilitate identification of the proposed development.

(H) All perennial and intermittent streams, wetland boundaries, surface water bodies, and areas subject to storm flows or flooding must be indicated. In addition, all coastal features (as identified in the Coastal Resource Management Plan, CRMP), should be delineated where applicable.

(I) The 100-year flood plain boundary with 100-year flood elevations and floodway must be clearly identified consistent with the most recent Federal Emergency Management Agency maps. This may include identifying any applicable flood velocity zones.

(J) The location of existing on-site stormwater structures.

(K) The location and types of easements.

(L) The seasonal high groundwater table in the location of proposed stormwater structures (e.g., detention basins, infiltration trenches, vegetated swales, etc.) as established in accordance with the procedures described in Section 6 of the RI Stormwater Design and Installation Standards Manual.

(M) Location of any required investigative soil pits or test wells.

(N) The delineation of major soil types in the vicinity of the proposed development as identified by the RI Soil Survey or qualified professional.

(O) Location of private and public water supply wells within 100 feet.

(P) Location of existing ISDSs abutting to and within the development site.

(Q) Vegetative cover type including outline of woodland cover.

(R) Existing open space.

(S) Any landmarks, stonewalls, fences, etc.

7.2 Maps of Site Showing Phases of the Proposed Project

The final site map must have all information necessary to evaluate the proposed project after the final construction phase is completed. This map must be at the same scale as the existing conditions site plan map(s) and include the following information.

(A) North arrow with scale.

(B) Subwatersheds must be clearly delineated and numbered for reference. Within each subwatershed the following information must be clearly noted: Area in acres, runoff curve number, soil types, hydrologic class, and hydrologic condition.

(C) Location of proposed structures and individual lots. These lots must be numbered for reference.

(D) Delineation of Individual Sewage Disposal Systems, public and private water supply wells, utility lines, and sub-drains.

(E) Location of all existing and proposed roads, driveways, parking lots, and other impervious surfaces. The total area of all impervious surfaces within each subwatershed must be clearly marked and labeled within the subwatershed boundary.

(F) All new stormwater structures (BMPs), collection and conveyance systems, and remaining portions of existing systems including points of discharge shall be clearly identified.

(G) The peak discharge rate and volume of stormwater flow shall be labeled where stormwater enters and exits all BMPs. Additionally, the final discharge points labeled with peak discharge rates and volumes of stormwater flow must be shown for all subwatersheds.

(H) All water channels or areas subject to storm flows into wetlands, shoreline and coastal features, and tidal waters must be clearly identified whether on-site or in abutting off-site locations.

(I) Design details of all specified stormwater structures (e.g., basins,

trenches, etc.) including inlet and outlet structures.

(J) Limits of vegetation clearing and overall site disturbance including delineation of lawns, open space, etc.

(K) The final elevation grade of the proposed development.

(L) Easements are required for installation and access of all stormwater management devices. These must be clearly identified on final plans.

(M) Complete soil erosion and sediment control plans to be implemented in all construction phases along with final site stabilization plans.

(N) Maintenance schedules for all stormwater structures as specified in Section 12 of the RI Stormwater Design and Installation Standards Manual.

7.3 Site Plan Calculations

In addition to the information required for site plans the following information must also be included with the application, where applicable.

(A) The area of each subbasin as identified on final site plans.

(B) The area of impervious surfaces (including all roads, driveways, rooftops, sidewalks, etc.) for each subbasin as identified in 13.5(1) section of the RI Stormwater Design and Installation Standards Manual.

(C) Weighted curve numbers, (CN) as determined by the SCS TR-55 method, for the pervious surfaces within each subbasin as identified in 13.5(1) section of the RI Stormwater Design and Installation Standards Manual.

(D) Invert elevations for all applicable BMPs. In addition, the elevations for permanent and/or flood pool stages, including peak discharge rates for each stage, within all basins are required.

(E) The total volume capacity for all flood control and water quality BMPs (e.g. infiltration basin, detention basins, wet ponds, etc.). Volumes must be segregated into permanent and flood pool stage

volumes where applicable. Furthermore, the volumes of all sediment storage (basins, forebays, etc.) areas must also be shown.

(F) Predevelopment and postdevelopment peak discharge rates and runoff volumes for the 2-year, 25-year, and 100-year frequency storm events for each subwatershed. The water quality volume must also be calculated for each subwatershed. All relevant variables such as curve numbers and time of concentration, along with the supporting computations and worksheets must be included.

7.4 Narrative Description

As part of the Site Plan, a narrative description should be prepared by the applicant to provide the following information: a brief description of the proposed project; potential water quality and/or hydrologic impacts of the proposed project on surface and/or groundwater resources, existing infrastructure, and/or adjacent properties; and proposed measures or practices to mitigate potential impacts. All affected wetlands, surface water and groundwater resources, and any significant site constraints affecting the selection of stormwater management practices must be identified.

The following outline is provided as guidance for preparing a narrative description for the Site Plan. Depending on the size and scope of the proposed project, the amount of information required by the permitting agency may vary, therefore it is advised to consult the appropriate permitting agency for specific requirements.

(A) Site description – general topography, soil types, current vegetative composition and relative abundance, identification of major resources (e.g., wetlands, groundwater, surface waters, etc.) name of receiving water(s).

(B) Site input data – watershed characteristics, area of all impervious surfaces, total area of site, annual mean rainfall, runoff coefficients, curve numbers for various land uses, peak discharge rates.

(C) Pollutant loading forecast – predevelopment and postdevelopment pollutant mass loadings to demonstrate the removal rates of individual or combined BMPs.

(D) Land use planning and source control plan.

(E) Best Management Practices – identify the type of BMP and justification for selection, including any deviation from the RI Stormwater Design and Installation Standards Manual and the potential effect on pollutant removal efficiency.

(F) Technical feasibility – of BMPs including sizing, location, hydraulic and environmental impacts. Alternatives, which were considered but determined not to be feasible, should also be discussed.

Section 8—Maintenance Agreements

Maintenance agreements shall provide written, contractual documentation, which demonstrates compliance with this section and legal arrangements for the upkeep of stormwater facilities to assure their functionality and safety in accordance with this ordinance.

Maintenance agreements, which describe all maintenance schedules and requirements, must be developed for each stormwater management facility unless the facility is dedicated to and accepted by *[name of municipality]*.

8.1 Recognition of Municipal Inspection Requirements

Maintenance agreements shall include a reasonable and regular schedule for the *[name of municipality]*, or designee, to conduct on-site inspection of the functionality and safety of stormwater management facilities. Inspection schedules shall be based on the complexity and frequency of maintenance needs and shall be subject to the approval of *[name of municipality]*.

Maintenance agreements shall recognize the authority of *[name of municipality]*, or designee, to conduct on-site inspections of stormwater management facilities should evidence exist that the facility is not being operated in accordance with the maintenance agreement or this ordinance; or should evidence exist that the facility poses an eminent threat to public health, welfare or safety.

8.2 Record Keeping for Maintenance Activities

Maintenance agreements shall include provisions for maintenance record keeping. All activities conducted in accordance with a maintenance agreement

must be recorded in a work order and inspection log. Timely updates of the log shall be the responsibility of the stormwater management facility owner or other responsible party pursuant to Section 8.3 of this ordinance. Review of the maintenance and inspection log shall be completed by *[name of municipality]*, or designee, to determine the effectiveness of operation, maintenance and safety activities. Reviews shall occur as part of each on-site inspection. Additional reviews may be made as deemed appropriate by *[name of municipality]* or designee.

8.3 Responsibility for Maintenance to Assure Functionality and Safety

Appropriate maintenance to assure functionality and safety of stormwater management facilities shall be the responsibility the owner or may be assumed by another party via a written contractual arrangement in accordance with Section 8.4 of this ordinance.

8.4 Alterations to Maintenance Agreements

Any alterations in maintenance responsibility or alterations to maintenance agreements must be reviewed and approved by (name of municipal review board). If portions of the land serviced by a stormwater management facility are to be sold, written contractual arrangements shall be made to pass all responsibility of the maintenance agreement to the purchaser and shall be subject to review and approval of (name of municipal review board). All alterations to maintenance agreements shall be recorded in accordance with Section 8.5 of this ordinance.

8.5 Recordation of Maintenance Agreements

All maintenance agreements and alterations to maintenance agreements shall be recorded in the land evidence records of *[name of municipality]*. Copies of all maintenance agreements and alterations to maintenance agreements shall be included in stormwater management plans. Recordation of maintenance agreements in accordance with this ordinance shall be the responsibility of the owner.

Section 9— Policy and Requirements for Performance Surety

A performance bond shall be posted to insure that all stormwater management facilities can be repaired in the event of malfunction. To demonstrate the posting and integrity of the performance bond, a letter of

credit shall be provided as part of the stormwater management plan. The letter of credit and posting of the performance bond shall be the responsibility of the property owner.

9.1 Value of the Performance Surety

The value of the performance bond shall be at least equal to the cost of implementing the stormwater management plan, fully.

9.2 Review and Approval of the Performance Surety

The acceptance of the performance bond and letter of credit for the purposes of this ordinance shall be subject to approval of the form, content, amount and manner of execution by the (name of the municipal review board).

9.3 Posting of the Surety with the Subdivision Bond

The amount of a performance bond for the stormwater management plan may be included with the performance bond of a subdivision provided that the performance bond receives full review and approval by (name of municipal review board) in accordance with Section 9.2 of this ordinance. Such a posting shall still require a letter of credit.

9.4 Release of the Performance Surety

The performance bond shall only be released after an on-site inspection of all the stormwater management practices in operating condition as describe in the stormwater management plan, and submission of as-built drawings certified by a registered professional engineer as being in compliance with the stormwater management plan.

9.5 Revocation of the Performance Surety

[Name of municipality] may revoke the performance bond in accordance with Section 10 of this ordinance.

Section 10–-Application Fees

[Name of governing body] shall be empowered to collect fees from permit applicants, which are commensurate with the cost of administering this ordinance.

Section 11—Enforcement

[Name of municipality] shall have the authority and discretion to invoke penalties, whenever a stormwater management facility is not implemented and operated in accordance with its approval and this ordinance. Any penalty invoked shall be in accordance with this section.

11.1 Revocation or Suspension of Approval

The approval of stormwater management plans, stormwater management facility construction and stormwater management facility operation, as subject to this ordinance, may be revoked or suspended, and all work on the project halted for an indefinite time period by (name of municipal review board) or a designee, after written notification is transmitted by the building official to the developer for one or more of the following reasons:

(A) Failure to comply with any condition of an approved plan, or specifications pertaining thereof.

(B) Violation of any requirement of this ordinance.

11.2 Notification of Violation

Whenever there is a failure to comply with the provisions of this ordinance, the [*name of municipality*] shall have the right to notify the applicant/owner that he or she has (5) days from the receipt of the notice to temporarily correct the violations and (30) days from receipt of notice to permanently correct the violations.

Should the applicant/owner fail to take the corrective actions, the city/town of _____ shall then have the right to take whatever actions it deems necessary to correct the violations and to assert a lien on the subject property in an amount equal to the costs of remedial actions. The lien shall be enforced in the manner provided or authorized by law for the enforcement of common law liens on personal property. The lien shall be recorded in the land evidence records of the city/town of _____, and shall incur legal interest from the date of recording. The imposition of any penalty shall not exempt the offender from compliance with the provisions of this ordinance, including revocation of the performance bond or assessment of a lien on the property.

11.3 Hearing

Any owner or responsible party, receiving a written notice of violation, shall be given an opportunity, within a reasonable time frame, for a hearing before the (name of municipal review board) to state their case. If evidence indicates that a violation has not occurred, the (name of municipal review board) shall revoke the notice of violation.

Section 12—Implementation

This ordinance shall take effect upon final passage and approval by the town/city council as appropriate.